

# RT-PCR Products from Mouse and Human Breast Tumor Cells

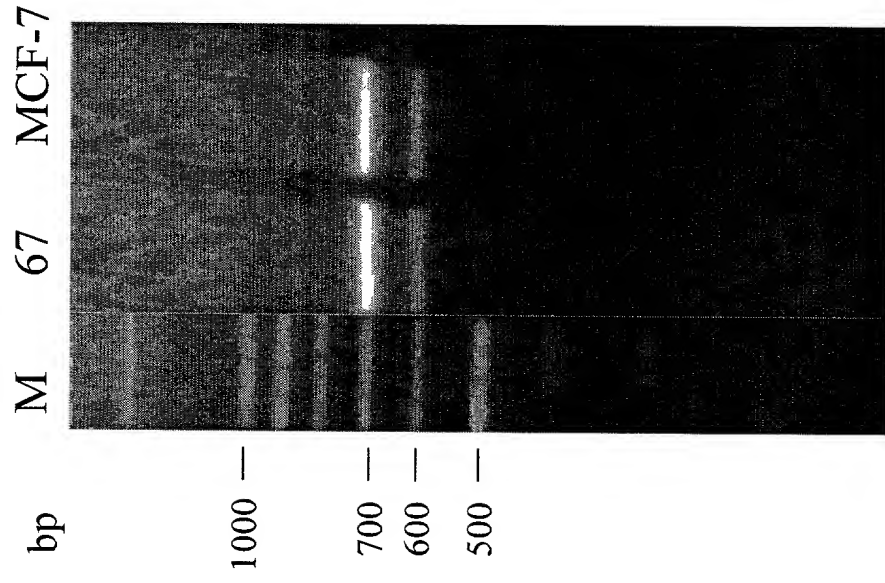


FIG. 1

**Human Sigma-1 $\beta$  Receptor  
mRNA Sequence (cd Region)  
GenBank: AF226604**

1 ATGCAGTGGGCCGTTGGCCGGCGGTGGCGCTGGGCCGCGCTGCTCTGGCTGTTCGCAGCG 60  
M Q W A V G R W A W A A L L A V A A

61 GTGCTGACCCAGGTCGTCTGGCTCTGGCTGGGTACGCAGAGCTTCGTCTTCCAGCGCGAA 120  
V L T Q V V W L W L G T Q S F V F Q R E

121 GAGATAGCGCAGTTGGCGCGGCACTACGCTGGGCTGGACCACAGAGCTGGCCCTTCTCTCGT 180  
E I A Q L A R Q Y A G L D H E L A F S R

181 CTGATCGTGGAGCTGGCGCGGCTGCACCCAGGCCACGCTGCTGCCGACGAGGAGCTGCAG 240  
L I V E L R R L H P G H V L P D E E L Q

241 TGGGTGTTTCGTGAATCGGGTGGCTGGATGGCGGCCATGTGCCCTTCTGCACGCCCTCGCTG 300  
W V F V N A G G W M G A M C L L H A S L

301 TCCGATATGTGCTGCTCTTCGGCACCGCCTTGGGCTCCCGCGCCACTCGGGGGAGACG 360  
S E Y V L L F G T A L G S R G H S G E T

361 GTAGTACACGGGCGCTGTGAGGCAACAGCTGTGGAGTGGGGGCCAAACACATGGATGGTG 420  
V V H G P G E A T A V E W G P N T W M V

421 GAGTACGGCGGGCGCTCATCCCATCCACCTGGCCTTCGCGCTGGCCGACACTGTCTTC 480  
E Y G R G V I P S T L A F A L A D T V F

481 AGCACCAGGACTTCCTCACCCCTCTTCTATACTCTTCGCTCCTATGCTCGGGGGCCTCCGG 540  
S T Q D F L T L F Y T L R S Y A R G L R

541 CTTGAGCTCACCACTACCTCTTTGGCCAGGACCCCTTGA 579  
L E L T T Y L F G O D P \*

FIG. 2

# Comparison of The Human Sigma-1 and Sigma-1 $\beta$ Receptor Protein Sequences

1	MQWAVGRRWAAALLLAVAAVL	TQVVWLWLGTQSFVQRE	IAQLARQYA	50
1	<b>MQWAVGRRWAAALLLAVAAVL</b>	<b>TQVVWLWLGTQSFVQRE</b>	<b>IAQLARQYA</b>	50
51	GLDHELAFSRLIVELRRRLHPGHVLPDEELQWV	FVNAGGWMGAMC	LLHASL	100
51	<b>GLDHELAFSRLIVELRRRLHPGHVLPDEELQWV</b>	<b>FVNAGGWMGAMC</b>	<b>LLHASL</b>	100
101	SEYVLLFGTALGSRGHSGRYWAEISDTIISGTFHQWREG	GTKSEVFYPGE		150
101	<b>SEYVLLFGTALGSRGHS (117)</b>	<b>[31 AA were deleted]</b>	<b>GE</b>	119
151	TVVHGPGEATAVEWGPNTWMVEYGRGVIPSTLAFALAD	TVFSTQDFLT	LF	200
120	<b>TVVHGPGEATAVEWGPNTWMVEYGRGVIPSTLAFALAD</b>	<b>TVFSTQDFLT</b>	<b>LF</b>	169
201	YTLRSYARGRLRLTLTYLFGQDP	223 AA	human $\sigma_1$ receptor protein	
170	<b>YTLRSYARGRLRLTLTYLFGQDP</b>	<b>192 AA</b>	<b>human <math>\sigma_{1\beta}</math> receptor protein</b>	

FIG. 3

# Mouse Sigma-1 $\beta$ Receptor mRNA Sequence (cd Region)

GeneBank: AF226605

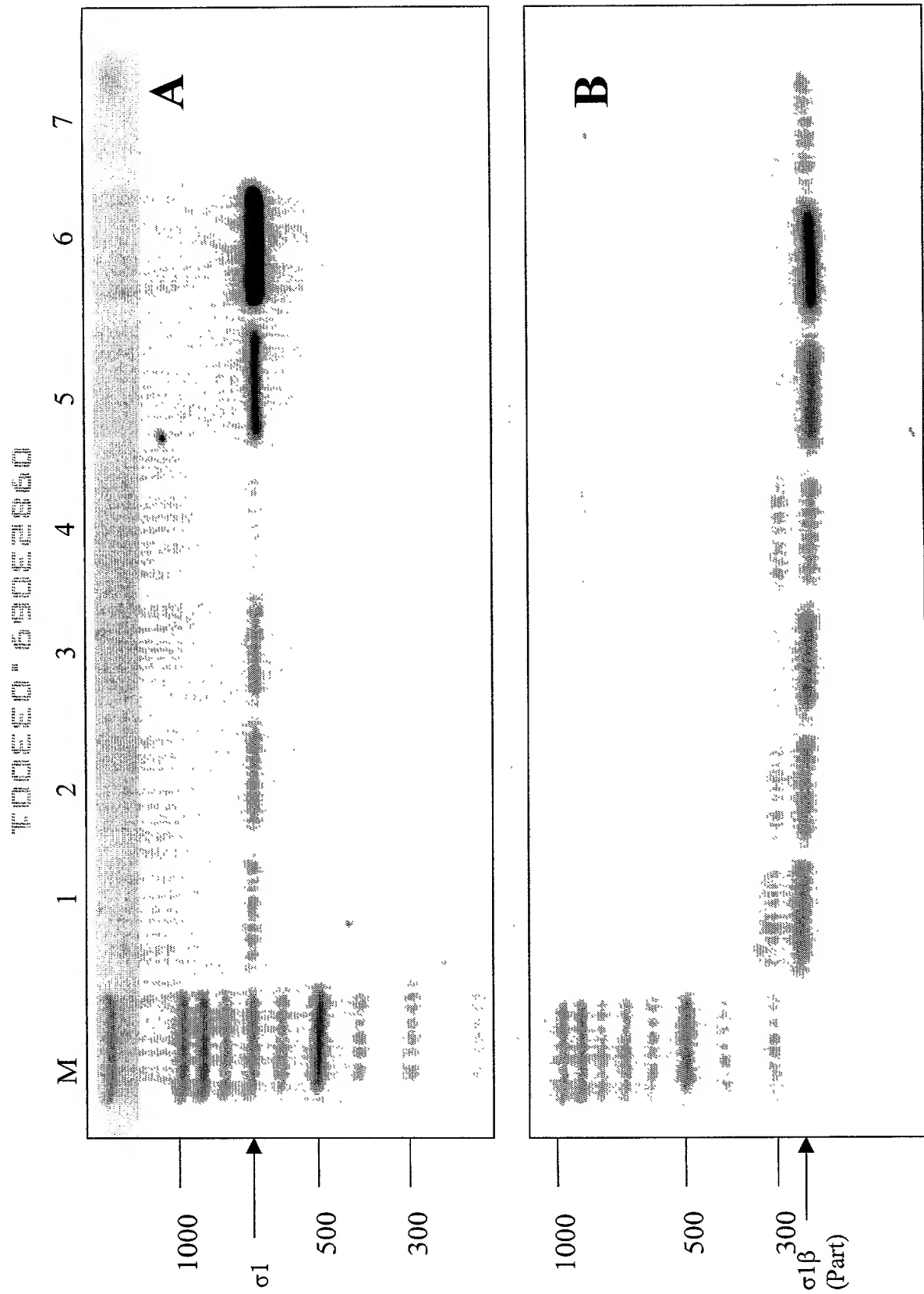
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1  ATGCCGTGGCGCGGACGGCGTGGGATCGATCACCCTGATTCTGACTATTATCGCA 60
M P W A A G R R W A W I T L I L T I I A
61  GTGCTGATCCAGCGCGCTGTTGTGGCTGGGCACTCAAAAACCTCGTCTCTAGAGAA 120
V L I Q A A W L W L G T Q N F V F S R E
121  GAAATAGCGAGCTTGCTCGACAGTATGGGGCTGGACCATGAGCTTGCTCTCGG 180
E I A Q L A R Q Y A G L D H E L A F S R
181  CTGATCGTGGAGCTGCGGAGGCTGCACCCAGGCACGTGCTGCCGGATGAGGAGTGCAG 240
L I V E L R R L H P G H V L P D E E L Q
241  TGGGTATTTGTGAACGGCGCGCTGGATGGCGCCCATGTGTATTCTGCACGCCCTCGCTG 300
W V F V N A G G W M G A M C I L H A S L
301  TCTGAGTACGTGCTTCTTCGGCACCGCCCTGGGCTCCCATGGCCATTCCGGGAGACACA 360
S E Y V L L F G T A L G S H G H S G E T
361  GTTGTAACGGGCTGGAGAAGCAACGGCTCTGGAGTGGGGACCAACACGTTGGATGGTG 420
V V H G P G E A T A L E W G P N T W M V
421  GAGTACGGCGGGTGTATTCCGTCACCCCTGTCTTTGCTAGCCGACACCTTCTTC 480
E Y G R G V I P S T L F F A L A D T F F
481  GGCACCCAGGACTACCTCACACTCTTATACCCCTTCGGGCCCTATGCCGGGCTCCGG 540
G T Q D Y L T L F Y T L R A Y A R G L R
541  CTTGAGCTTACCACCTACCTCTTTGGCCAAAGACTCCTGA 579
L E L T T Y L F G Q D S *
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**FIG. 4**

# Comparison of The Mouse Sigma-1 and Sigma-1 $\beta$ Receptor Protein Sequences

1	MPWAAGRRWAWITLLITIIAVLIQAAWLWLGTONFVFSREEIAQLARQYA	50
1	<b>MPWAAGRRWAWITLLITIIAVLIQAAWLWLGTONFVFSREEIAQLARQYA</b>	50
51	GLDHELAFSRLIVELRRLHPGHVLPDEELQWVFVNAGGWMGAMCILLHASL	100
51	<b>GLDHELAFSRLIVELRRLHPGHVLPDEELQWVFVNAGGWMGAMCILLHASL</b>	100
101	SEYVLLFGTALGSHGSHGRYWAEISDTIISGTFHQWKEGTTKSEVFYPGE	150
101	<b><u>SEYVLLFGTALGSHGHS</u></b> (117) [31 AA were deleted] <b>GE</b>	119
151	TVVHGPGEATALEWGPNTWMVEYGRGVIPSTLFFALADTFFGTQDYLTIF	200
120	<b>TVVHGPGEATALEWGPNTWMVEYGRGVIPSTLFFALADTFFGTQDYLTIF</b>	169
201	YTLRAYARGRLRLTLTYLFGQDS* 223 AA	$\sigma_1$ receptor protein
170	<b>YTLRAYARGRLRLTLTYLFGQDS*</b> 192 AA	<b><math>\sigma_{1\beta}</math> receptor protein</b>

FIG. 5



**FIG. 6**

# **Sigma-1 Receptor Gene**



Sigma-1 Receptor mRNA

Human Sigma-1 $\beta$  Receptor mRNA

Mouse Sigma-1 $\beta$  Receptor mRNA

**FIG. 7**